

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-4, 6-10 and 12 are presently active in this case, Claims 1 and 7 having been amended by the present amendment and Claims 5 and 11 having previously been canceled.

The outstanding Office Action rejected Claims 1-3, 6-9 and 12 under 35 U.S.C. §103(a) as unpatentable over Cho et al. (U.S. Patent Publication No. 2004/0114087; herein “Cho”) in view of Imabayashi et al. (U.S. Patent No. 6,678,030; herein “Imabayashi”) and Wen et al. (U.S. Patent 6,208,410, herein “Wen”). Claims 1-3 and 7-9 were rejected under 35 U.S.C. §103(a) as unpatentable over Nishida et al. (U.S. Patent No. 6,842,207; herein “Nishida”) in view of Imabayashi and Wen. Claims 4 and 10 were rejected under 35 U.S.C. §103(a) as unpatentable over Nishida, Imabayashi and Wen in view of Ochiai et al. (U.S. Patent 6,768,532, herein “Ochiai”). Claims 1, 6, 7 and 12 were further rejected under 35 U.S.C. §103(a) as unpatentable over Yi et al. (U.S. Patent Publication No. 2003/0104291; herein “Yi”) in view of Nishida and Imabayashi.

In light of the several grounds for rejection, Claims 1 and 7 have been amended to clarify the claimed invention and thereby more clearly patentably define over the cited prior art. To that end, Claims 1 and 7 have been amended consistent with Applicants’ Figure 1 and Figure 3 disclosure to state explicitly that the display region is formed of plural pixels, and that the light shield layer is formed in a picture-frame shape along a peripheral edge of the display region. This amendment is made particularly to clarify the difference between Applicants’ light shield layer SP and the black matrix layer disclosed in the prior art. No new matter has been added by the present amendment.

In regard to the rejection of Claim 1 as unpatentable over the combined teachings of Cho, Imabayashi and Wen, it is noted that these references include conflicting teachings

which are not addressed or reconciled in the outstanding rejection. For example, Claim 1 recites that the first spacer formed in the first (larger) gap has a contact area greater than the contact area of the second spacer formed in the second (smaller) gap. Cho in paragraph [0054] teaches just the opposite relationship, which is in complete conflict with the Figure 7 disclosure of Imabayashi relied upon in the outstanding Office Action. It is only Applicants' disclosure which reconciles the conflicting teachings, but of course it is improper in an analysis under 35 U.S.C. §103 to rely on Applicants' disclosure for that purpose.

Furthermore, it is respectfully submitted that Cho, Imabayashi and Wen fail to teach a first substrate includes a light shield layer formed in (1) a picture-frame shape along a peripheral edge of a display region, (2) where the display region is formed of plural pixels, and (3) the first columnar spacer, and that the second columnar spacer and the light shield layer are formed of the same material, as stated in the last paragraph of each of Claims 1 and 7. Instead, as noted in the outstanding Office Action, the cited prior art teaches a black matrix layer formed in the interior of the display region, and not along a peripheral edge of a display region formed of plural pixels. Thus, the present amendment distinguishes Claim 1 over Cho, Imabayashi and Wen even if each pixel is considered to be a "display region," which apparently was the interpretation on which the outstanding grounds for rejection were based. Reconsideration and withdrawal of the outstanding rejection of Claim 1 based on Cho, Imabayashi and Wen is therefore believed in order and is respectfully requested. For the same reasons reconsideration and withdrawal of the rejection of Claim 7 based on Cho, Imabayashi and Wen is respectfully requested.

Likewise, in regard to the rejection of Claims 1 and 7 as unpatentable over Nishida, Imabayashi and Wen, these references also fail to teach structure corresponding to the light shield SP of Applicants' invention, and merely teach provision of a black matrix provided for each pixel. Thus, the present amendment distinguishes Claim 1 over Nishida, Imabayashi

and Wen even if each pixel is considered to be a “display region.” Reconsideration and withdrawal of the outstanding rejection of Claim 1 based on Nishida, Imabayashi and Wen is therefore believed in order and is respectfully requested.¹ For the same reasons reconsideration and withdrawal of the rejection of Claim 7 based on Cho, Imabayashi and Wen is respectfully requested.

Yi in Figure 1 shows a black matrix provided in relation to a peripheral sides of plural pixels, but fails to teach that the pixels have different gaps or differently sized spacers in different gaps, or what the size relationships of different spacers in different gaps should be. This teaching is considered by Applicants to be completely isolated, especially in view of the conflicting teachings provided by Yi in regard to identical spacers provided in identical gaps (see Yi, Figures 5D and 5E). As is well recognized, it is improper to pick and choose isolated teachings in the prior art without clear motivation in the prior art itself to do so. Here again, it is respectfully submitted that motivation to do so does not exist in the cited art, and the only motivation is provided by Applicants’ disclosure. Claims 1 and 7 are therefore believed patentably distinguishing over the cited prior art absent application of hindsight.

Applicants further traverse the outstanding rejection of Claim 2, which further defines the liquid crystal display apparatus according to Claim 1, as including --the first gap region includes a first color filter layer that mainly passes first color light, the second gap region includes a second color filter layer that mainly passes second color light, and the first color

¹ The disclosure at column 16, lines 14-19 of Nishida has also been considered, but this disclosure merely suggests use of black matrix 9 “to inhibit leakage of light from any other area than display areas in which effective display control is performed.” In Applicants’ view it does not state or suggest a light shield provided at a periphery of a display region formed of plural pixels, as stated in the amended claims. Furthermore, as is believed evident from Nishida’s Figure 12, the black matrix 9 is made of a different material than the spacers 26, contrary to the claimed feature of the peripheral light shield and spacers being made of the same material. Similarly, the Nishida spacers 9 have the same contact area, contrary to the specific recitations in Applicants’ claims. Thus it is clear that Nishida includes a number of teachings which conflict with the claimed invention, and it is only through hindsight application of the teachings of Applicants’ invention that such conflicting teachings are resolved. See MPEP 2141, stating, as one of the tenets of patent law applying to 35 USC 103, that “[t]he references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention.” In re Ehrreich and Avery, 200 USPQ 504, 510 (CCPA 1979)

light has a wavelength greater than a wavelength of the second color light.-- Similar language is stated in pending Claim 8. When the subject matter of Claim 2 is considered in conjunction with the parent Claim 1, it is clear that Claim 2 associates differently sized spacers to respective color filter wavelengths, i.e., the first gap region having the greater contact area spacer is associated with a first color filter layer filtering a first color light of greater wavelength than the second color light associated with the second color filter provided in the second gap region with the smaller contact area spacer. In this way, larger gaps are associated with greater contact area spacers and higher wavelength color filters and smaller gaps are associated with smaller contact area spacers and lower wavelength color filters, whereby the advantages described at page 30, lines 9-25 of the specification are obtained.

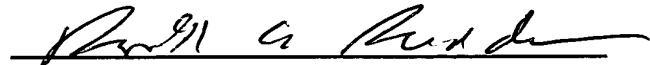
It is respectfully submitted that the cited prior art fails to associate spacer contact area, filter wavelength and gap spacing as recited in pending Claims 2 and 8. While Nishida Imabayashi discloses greater contact area spacers for greater gaps, Imabayashi does not disclose that in the context of color wavelengths. While Nishida discloses greater gaps for different colors, it discloses each spacer having the same contact area. At most therefore the prior art includes conflicting teachings which are resolved only by Applicants' disclosure. Absent hindsight, it is respectfully submitted that Claims 2 and 8 are patentably distinguishing over the cited prior art references.

Similar arguments apply with respect to Claims 3 and 9 which associate gap spacing, spacer size and color. Claims 3 and 9 are therefore also believed to be patentably distinguishing over the cited prior art references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-4, 6-10 and 12 is earnestly solicited.

Respectfully submitted,

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